An Introduction to the

Investigating Your Environment Series

Making informed and responsible decisions about natural resources management is possible only when we understand our natural, social and economic environments and our personal role in affecting all three. The processes and techniques contained in these investigations enable people to examine different components of the environment and understand how they (and we) interrelate.

Investigating Your Environment (IYE) is a supplemental interdisciplinary curriculum for use in grades 6-12. The IYE series was developed in the 1960's through the creativity and cooperation of several individuals from different groups and/or agencies committed to providing effective natural resource management education in the United States. The program has been popular with students, teachers and resource educators since its inception due to its many strengths.

IYE is:

- *broad based.* Many popular education programs focus on one aspect of the environment--wildlife, forestry, etc. IYE activities investigate multiple aspects of our natural and social world
- *practical.* It has a wide application. Participants don't have to live in or near a rural environment to gain a deeper understanding of their natural world. For example, a New York City group performed an IYE wildlife application on Staten Island using pigeons to illustrate the lesson. It worked!
- *designed for educators. IYE* not only promotes a conservation ethic, but does so by providing educators with sound strategies that effectively facilitate long-term learning. In fact, the creators of IYE long ago recognized the value of "hands-on" learning before it became more mainstream. Too, teachers do not have to be resource experts to facilitate these investigations. All teachers are encouraged, however, to participate in teacher-training workshops.

The goal of IYE is to help develop participants' skills and motivation to interact with and understand their environment. An investigative "hands-on" approach in which participants observe their surroundings and collect, record and interpret data is used in each unit. Questions and discussions are designed to elicit maximum response and involvement from participants and eliminate prolonged lecturing and teacher demonstrations. As students participate in the activities, they hone critical-thinking skills and follow basic problem-solving steps to predict and draw conclusions from their data.

Each lesson plan provides a framework in which succeeding activities and discussions build on previous lessons and lead to an understanding of environmental problems and possible solutions. Learners are then

asked to synthesize the information they have gathered to predict physical, social and economic impacts upon the environment in a variety of situations.

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Unit/Lesson Plans

Each unit consists of several lesson plans with an introduction. Teachers should feel free to combine the activities or intersperse them within their curriculum as best accomplishes their goals.

Each lesson plan begins with:

- Concepts
- Principles
- Objectives
- Preparation
- Materials needed
- Processes

The lesson plan itself follows these steps:

- DOING THE ACTIVITY
  Stage setting
  Procedure
  Retrieve Data
- CLOSURE
- TRANSITION

Following the listings in each lesson plan is a section titled, "Doing the Activity" which explains where the activity should occur and gives step-by-step instructions. Closure activities, statements or questions, and transitions are provided where appropriate. When data collection and/or information sheets are used within the lesson, full-size blackline masters are provided.

Interpretation of Data Process

The main framework of the lessons is the Interpretation of Data Process. This process has been adapted by permission from the course, "Development of Higher Level Thinking Abilities," 1968, Northwest Regional Education Laboratory, Portland, Oregon. The course deals with thinking tasks, concept formation, data interpretation and applying the interpretation, as defined in the parent material.

As the Interpretation of Data Process is used in the lesson plans, it involves four basic activities in a standard sequence.

Activity

- Open- Exposes a lot of data. Allows all to participate.
- Focus- Focuses on the topic(s) to be investigated.
- Interpretive- Looks for contrasts, cause-and-effect relationships.
- Summary- Allows group to summarize their findings.

The questioning sequence used in the summary also follows the basic format of using "Open," "Focus, "Interpretive," and "Summary" questions.

Open Activity

Open activities provide opportunities for all persons to participate and obtain a body of specific data which will provide them the opportunity to focus on significant points. All participants, regardless of their ability or background, can become immediately involved in the investigations. Open activities are free of the guessing game, "What's on teacher's mind?"

Instructions for open activities typically read: Write down what you see as you look at the hillside; list the things you see on your walk in the city; discuss what you notice about the soil profile.

Focusing Activity

Focusing activities concentrate on specific data as a central point for discussion. The characteristic of this activity is specificity--e.g.: List some things that are helping the log decay; discuss some things that affect water quality; sketch some possible things that could cause this change.

Interpretive Activity

Interpretive activities compare, contrast and seek logical relationships between specific points forwarded from the focus step. The learner is asked to compare and contrast two or more specific points in the data and express a perceived or inferred relationship between or among them. Some interpretive activity sheets use charts, tables and other written information as a basis for making more accurate interpretations of the data Thus more responsibility for learning is placed on the participant. The teacher or leader *facilitates* activities and learning experiences.

Summary

To maximize learning, each activity needs closure. This is the facilitator's opportunity to find out what has been learned and make the transition to the next activity. The summary occurs at the close of a particular discussion and calls for a generalized statement which summarizes the discussion yet applies to a variety of situations. Closure can occur at the end of all activities or when you want to make sure the idea is understood. Closure usually involves participants' sharing or telling each other what they've learned before communicating it to the entire group. Teachers can use their favorite closure techniques to accomplish this stage of the lesson. Both forms call for a conclusion, generalization or summary.

Summary activities lead to conclusions: Summarize, in writing, our discussion about architecture; based on our observations and discussion, construct a diagram to illustrate some influences on water environments; and so on.

Facilitator Role

The teacher or instructor is now a facilitator. This allows each group member to successfully participate and interact with the environment and creates within each individual a more personalized learning experience. Opportunities for independent data collection and interpretation, combined with using the discussion questions and skills displayed in the lesson plans, enhance the development of group discussion and individual thinking skills.

The approach used in IYE can become a valuable planning tool in the following ways:

- Environmental investigations can be developed to allow groups to combine skills and knowledge as they collect and interpret their own information.
- The group leader can identify the group's level of understanding of a topic.
- A group works together in a problem-solving situation.
- A group summarizes their own findings, values and feelings before comparing them to the findings, values and opinions of other groups, specialists or professionals.

From the Classroom to the Real World

Throughout the IYE series, participants are asked to look beyond the content to the process they are using. They are asked to analyze the methods and processes used to collect, interpret and summarize their data. Knowledge of the processes used in the investigation can be transferred to the next investigation. As a person grows in this process, the knowledge gained allows him or her to modify the process to accommodate investigations into other environmental or problem-solving situations. Repeated experience with this process can and has led to a greater ease in applying the scientific method of problem-solving, solving mathematical problems, understanding land-use management plans, reading environmental impact statements, and/or interacting as an informed citizen in the social and political arenas of natural resource management.

Conducting An Investigation

The lesson plans are self-explanatory, but some aspects of the overall process still need to be emphasized.

Preparation

Select the site and do a dry run investigation on the site.

Plan to pace the session so that each activity can be done well.

Use the lesson plan as a guide, especially for the questions and the discussion periods. Once the plan has become familiar, do not hesitate to revise it as necessary.

If time does not permit for the entire investigation, decide in advance which activities should be omitted. Always allow time for participants to collect their own data and ample time for the summary questions.

Make sure you have enough equipment and that it works properly.

Beginning

Set the stage for what will happen during the session. Refer to the introductory paragraphs in each lesson,

Before leaving for the study area, have the participants discuss what effects the investigation itself may have on the environment and any possible hazards that may be encountered.

Arrange for checking out and returning the equipment. Usually, it is best to have one or more participants do this.

Implementation

Give clear directions. Read and/or write directions. Ad libbing instructions often changes and confuses the meaning. Remember, too, not all people learn in the same way.

Listen to the participants and accept all their contributions.

Keep the original question in focus- don't let the discussion digress.

Allow adequate time for the final summary and discussion. It may take up to half an hour. This discussion is the essence of measuring the participants' learning experience.

When appropriate, discuss how the investigation can be used in classrooms or on school grounds. Look especially at how environmental studies can be integrated into various subject areas in the school's curriculum.

Consider using the summary discussion as an evaluation tool.

Conclusion

Constantly be alert for opportunities to expand, adapt and improve subsequent investigations.

The ideas and activities presented herein will come to life only as you try them, modify them, and improve them to fit your own needs, style and situation.

In Gratitude

We'd like to thank the hundreds of you who have been involved in writing these activities over the past 30+ years and the thousands of you who have used IYE and provided feedback. You have helped produce a truly superior product. In gratitude, we salute your contribution to the enhancement of life on this planet.

Specific materials and ideas in this packet are used with the permission of:

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